6.6 If three parallel lines intersect two transversals, then they divide the transversals proportionally. *(p. 398)*

6.7 If a ray bisects an angle of a triangle, then it divides the opposite side into segments whose lengths are proportional to the lengths of the other two sides. *(p. 398)*

7.1 Pythagorean Theorem In a right triangle, the square of the length of the hypotenuse is equal to the sum of the squares of the lengths of the legs. *(p. 433)*

7.2 Converse of the Pythagorean Theorem If the square of the length of the longest side of a triangle is equal to the sum of the squares of the lengths of the other two sides, then the triangle is a right triangle. *(p. 441)*

7.3 If the square of the length of the longest side of a triangle is less than the sum of the squares of the lengths of the other two sides, then the triangle is an acute triangle. *(p. 442)*

7.4 If the square of the length of the longest side of a triangle is greater than the sum of the squares of the lengths of the other two sides, then the triangle is an obtuse triangle. *(p. 442)*

7.5 If the altitude is drawn to the hypotenuse of a right triangle, then the two triangles formed are similar to the original triangle and to each other. *(p. 449)*

7.6 Geometric Mean (Altitude) Theorem In a right triangle, the altitude from the right angle to the hypotenuse divides the hypotenuse into two segments. The length of the altitude is the geometric mean of the lengths of the two segments. *(p. 452)*

7.7 Geometric Mean (Leg) Theorem In a right triangle, the altitude from the right angle to the hypotenuse divides the hypotenuse into two segments. The length of each leg of the right triangle is the geometric mean of the lengths of hypotenuse and the segment of the hypotenuse that is adjacent to the leg. *(p. 452)*

7.8 45°-45°-90° Triangle Theorem In a 45°-45°-90° triangle, the hypotenuse is $\sqrt{2}$ times as long as each leg. *(p. 457)*

7.9 30°-60°-90° Triangle Theorem In a 30°-60°-90° triangle, the hypotenuse is twice as long as the shorter leg, and the longer leg is $\sqrt{3}$ times as long as the shorter leg. *(p. 459)*

8.1 Polygon Interior Angles Theorem The sum of the measures of the interior angles of a convex n-gon is $(n - 2) \cdot 180°$. *(p. 507)*

Corollary The sum of the measures of the interior angles of a quadrilateral is 360°. *(p. 507)*

8.2 Polygon Exterior Angles Theorem The sum of the measures of the exterior angles of a convex polygon, one angle at each vertex, is 360°. *(p. 509)*

8.3 If a quadrilateral is a parallelogram, then its opposite sides are congruent. *(p. 515)*

8.4 If a quadrilateral is a parallelogram, then its opposite angles are congruent. *(p. 515)*

8.5 If a quadrilateral is a parallelogram, then its consecutive angles are supplementary. *(p. 516)*

8.6 If a quadrilateral is a parallelogram, then its diagonals bisect each other. *(p. 517)*

8.7 If both pairs of opposite sides of a quadrilateral are congruent, then the quadrilateral is a parallelogram. *(p. 522)*

8.8 If both pairs of opposite angles of a quadrilateral are congruent, then the quadrilateral is a parallelogram. *(p. 522)*

8.9 If one pair of opposite sides of a quadrilateral are congruent and parallel, then the quadrilateral is a parallelogram. *(p. 523)*

8.10 If the diagonals of a quadrilateral bisect each other, then the quadrilateral is a parallelogram. *(p. 523)*

Rhombus Corollary A quadrilateral is a rhombus if and only if it has four congruent sides. *(p. 533)*

Rectangle Corollary A quadrilateral is a rectangle if and only if it has four right angles. *(p. 533)*

Square Corollary A quadrilateral is a square if and only if it is a rhombus and a rectangle. *(p. 533)*

8.11 A parallelogram is a rhombus if and only if its diagonals are perpendicular. *(p. 535)*

8.12 A parallelogram is a rhombus if and only if each diagonal bisects a pair of opposite angles. *(p. 535)*

8.13 A parallelogram is a rectangle if and only if its diagonals are congruent. *(p. 535)*

8.14 If a trapezoid is isosceles, then both pairs of base angles are congruent. *(p. 543)*

8.15 If a trapezoid has a pair of congruent base angles, then it is an isosceles trapezoid. *(p. 543)*